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SOME CONSIDERATIONS ON PROSTATECTOMY.*

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GRANTED that the operation of prostatectomy is indicated in certain cases, and that the views of McGill and others as to the anatomy, physiology, and pathology of the prostate, which justify the operation, are true as opposed to the older views of Thompson and Guyon, there are two lines along which personal experience and a careful study of the extensive literature of the subject have directed my attention: 1. The nature of the obstruction in prostatics. 2. The choice of operation for its relief.

As to the first consideration, opposing views were held by von Dittel and the late Mr. McGill. The first two propositions of the latter, in his paper at Leeds† in 1889, representing one extreme, are as follows: "1. Prostatic enlargements which give rise to urinary symptoms are intravesical and not rectal. 2. That retention is caused by a valve-like action of the intravesical prostate, the urethral orifice being closed more or less completely by the contraction of the bladder on its contents." According to McGill's views, the most essential element in this intravesical prostate is the hypertrophy of the so-called median lobe.

On the other hand, von Dittel,‡ although admitting the above to be occasionally true, claims that hypertrophy of the middle lobe happens very seldom without a high degree of enlargement of the lateral lobes. Although Moullin# claims that tables based upon museum specimens afford little assistance in determining the point of obstruction, yet, according to Eigenbrodt,|| the figures of Thompson, Civiale, and Du-

* Read before the Section on Genito-urinary Surgery, New York Academy of Medicine.

† *Brit. Med. Jour.*, Oct. 19, 1889.

‡ *Wiener klin. Woch.*, 1890, No. 18.

The Operative Treatment of Enlargement of the Prostate. London, 1892.

|| *Beiträge z. klin. Chir.*, 1891-'92, viii, 125-170.



puytren, put together, show the median portion prominently enlarged in only nineteen per cent. The claim that a general enlargement is present in most cases is well founded, and is confirmed by the observations of Desnos,* who found the median portion enlarged but twelve times in forty-seven cases; and of Vignard,† who found only twelve cases where there was any hypertrophy manifest at the level of the neck of the bladder among twenty-eight specimens in the Musée Civiale.

On the other hand, Watson ‡ found among thirty specimens twenty-eight in which the principal hindrance was in outgrowths at the vesical outlet, and in ten this was the only hindrance.

The fact is well known that, though perhaps as many as thirty per cent of all men who reach fifty-four years of age and over have prostatic enlargement, not over fifty per cent of these suffer from the enlargement, and many of these only moderately. Does not this naturally suggest the question whether the various forms of enlargement are equally the cause of obstruction, and whether this minority of acute cases may not be due to some form of the enlargement which occurs only in a minority of cases, such as pronounced median-lobe hypertrophy or intravesical growth?

The important thing to know is which kind or kinds of enlargement cause such conditions and symptoms as call for radical operative relief. On examination of the recent literature of the subject we find that all varieties of opinion are held. Many agree with McGill's view that it is the minority of cases, comprising intravesical and median enlargement, that require operative relief.

Hurry Fenwick's § statement that ninety per cent of prostatic obstructions are due to middle-lobe enlargement is probably as much as McGill would have claimed for this lobe. Buckstone Browne || says that, of the three forms of prostatic enlargement, (1) intravesical, (2) extravesical, and (3) a combination of both, the first, or intravesical form, is the chief cause of difficulty in micturition. In approving the advice of Browne not to touch the lateral lobes, J. Hutchinson ^ says that it is the projecting and valvelike vesical lobe which alone constitutes the impediment. Kummel ¶ is said to believe that tumorlike intravesical hypertrophy of the middle lobe is more common than is

* *Traité élém. d. mal. d. voies urin.* Paris, 1890, p. 309.

† *Ann. de mal. d. org. génito-urin.* Paris, 1890, viii, 649-683.

‡ *Annals of Surgery*, 1889, pp. 1-27.

§ *Lancet*, January 16, 1892, p. 141.

|| *Lancet*, 1893, vol. i, p. 527.

^ *Archiv. Surg.*, London, 1892-'93, p. 348.

¶ *Festschr. zum 70n Feiertag Fr. v. Esmarch*, 1893, 443-452.

generally supposed. Tobin * claims that reference to specimens shows that it is in cases where the median lobe is movable, and therefore removable, that retention of urine is most complete.

McGill's view would seem to be still further borne out by the case cited by him where an enormous prostate, filling the pelvis and causing obstruction of the bowels, gave rise to no urinary symptoms.

We might multiply quotations on this subject, but will only add that of Eigenbrodt,† who does not think that von Dittel's views as to the causative rôle of the lateral lobes are true to the extent of von Dittel's belief, for the operations described in the literature of the subject disprove them. He admits that in most cases the hypertrophy is a general but not a uniform one, and that tumorlike projections have a tendency to grow into the bladder, though pedunculated outgrowths from either lobe are generally admitted to be rare.

Accordingly, intravesical growths must generally be nonpedunculated. The forms of intravesical outgrowths, according to McGill, are (1) projecting middle lobe (pedunculated or sessile); (2) median and lateral lobes, forming three distinct projections; (3) lateral lobes; (4) pedunculated growths from the lateral lobe; and (5) uniform circular or collarlike projections surrounding the internal urethral orifice. The latter, in his earlier report,‡ McGill considered the most common, and in such forms the lateral lobes take part by their intravesical enlargement.

Belfield's# tabulation of sixty-three cases of prostatic obstruction operated upon shows that, as to the form and location of the enlargement, median tumors occurred thirty-seven times, lateral tumors nine times, median and lateral tumors five times, and collarlike enlargements seven times, etc.

It is certainly striking to note how often the so-called middle lobe is reported as enlarged, either alone or most prominently, and how often the removal of this part alone has been followed by a good result. The cases cited by McGill and some others, where the most aggravated type of symptoms of prostatic obstruction existed without rectal examination revealing any enlargement of the lateral lobes, must, I think, be most unusual; and the statement made by Moullin,|| and in substance by J. William White^ and others, that "the absence of any

* *Dublin Jour. Med. Sci.*, 1891, xcii, 497-500.

† *Loc. cit.*

‡ *Lancet*, February 4, 1888, p. 215.

Am. Jour. Med. Sci., November, 1890.

|| *Loc. cit.*

^ *Med. News*, Philadelphia, 1890, vol. li, December 12, p. 628.

enlargement when the gland is merely explored *per rectum* is not of the slightest value as regards its extension in other directions," is, I think, an exaggeration, and only correct so far as concerns the few and rare cases where a pedunculated or isolated median-lobe enlargement occurs. For I can not imagine any significant hypertrophy of the lateral lobes without being able to feel them through the rectum—in which direction, as well as intravesically, they grow most readily.

It must be admitted, I think, that the "median portion" may occasionally cause obstruction with little or no assistance from the lateral lobes. Von Dittel himself acknowledged this to be true, though very rarely.

We may discuss the question before us in three parts:

1. What is the evidence that an isolated enlargement of the median lobe is not so important a factor as some would have us believe? Von Dittel thinks that this is furnished by clinical and anatomical observation and by experiment. Eigenbrodt* remarks that the cases of outspoken formation of a "middle lobe" are not the most frequent, and he quotes Busch† as saying that valvelike "middle lobes" exist but are rare. Moullin‡ expresses it as follows: "Occasionally, but not nearly as often as is usually believed, a small median outgrowth acting like a valve is found at the neck of the bladder, almost by itself, the rest of the gland being practically normal."

Furthermore, the results of operations where the middle lobe alone has been removed do not harmonize as they should, if the middle lobe or even the intravesical portion were the only factor. Thus M. Schmidt,§ after a suprapubic prostatectomy of the middle lobe without result, was obliged to make a median perineal section, remove the urethral obstruction piecemeal, dilate the urethra, and use a stationary catheter; and only after further dilatation of the prostatic urethra was spontaneous urination effected. The failure of operations directed to the removal of the median portion alone was what led me to try von Dittel's operation in the case I have to report. As White|| says, in a number of cases (Schmidt, Guyon, McGill, Belfield, etc.), obstruction due to sub-urethral prostatic growths has been found which has led to the "combined operation," together with stretching the prostatic urethra, as advocated by Belfield. The observation has been made by von Dittel^ that in anatomical preparations of isolated middle lobes the changes caused by retention—i. e., hypertrophy, dilatation, trabeculæ, and diverticula—are found but little developed, which justi-

* *Archiv f. klin. Chir.*, xx, 461.

† *Loc. cit.*

‡ *Loc. cit.*

§ Quoted by von Dittel, *loc. cit.*

|| *Annals of Surgery*, August, 1893, p. 179.

^ *Loc. cit.*

fies the opinion that the urinary difficulty during life did not reach the degree requiring operation in preference. This would indicate that enlargement of the median lobe alone does not necessarily cause acute or obstinate obstruction, though we know, as before stated, that it may do so. Von Dittel's third experiment, described later, also goes to show that something besides the median lobe causes obstruction.

On the whole it seems evident that the median lobe is not the only factor, or even as important a one in prostatic obstruction as is claimed by many. Granting this, we may question—

2. Is the intravesical growth alone of the median and lateral lobes accountable for all the trouble in prostatic obstruction which it is sought to remove by operation? This is answered in the negative: firstly, by what has been said as to the median lobe, for obstruction due to it is almost entirely intravesical; secondly, by what will be said in favor of the importance of the lateral lobes, which cause obstruction largely by lateral compression extravasically.

Although in the majority of cases operated upon and reported it is noticeable that intravesical growths of the prostate did occur, yet one would expect some such appearance in almost any obstructive enlargement of the prostate; for, from its anatomical relations with the deep perineal fascia and the pubic bones, little downward or forward projection of the prostate is possible. It extends where there is the least resistance—i. e., upward or intravesically and backward toward the rectum. This fact we are all familiar with from the results of rectal palpation. The upward growth of the lateral lobes, as Moullin says,* “carries the bladder before it,” and it may be completed posteriorly by a median upgrowth or by a connecting fold of mucous membrane. In either case a so-called post-prostatic pouch exists which, when once formed, is deepened by the hydraulic pressure of the bladder, thus exposing more and more of the posterior surface of the median portion. This may account for the apparently more rapid growth of the median portion, and in many cases where a median intravesical hypertrophy is reported I imagine that it is simply the result of the exposure of this part by the pouch behind a collarlike projection connecting the lateral lobes. As Wishard † points out, McGill's proposition that “prostatic enlargements which give rise to symptoms are intravesical” does not appear to hold good in all instances, although generally correct. But, as he says, “it is certainly also true that in cases with hypertrophied

* *Annals of Surgery*, August 1893, p. 179.

† *Journal Cutaneous and Genito-urinary Diseases*, 1892, p. 105.

tissue projecting into the prostatic canal such enlargements may not only be the cause of urethral and vesical irritation but also interfere seriously with the introduction of instruments."

Belfield * also states that "the intravesical projections may in a given case constitute but a part of the prostatic obstruction."

That intravesical prostatic outgrowths may be a frequent or even the most frequent cause of vesical obstruction can not be denied, but it is no less true that they are by no means the only cause of such obstruction.

This being granted, we may ask: 3. What evidence is there that the lateral lobes, and especially their extravescical portion, are of importance in causing obstruction. That the lateral lobes may and do cause obstruction extravescically is clearly shown by experience and experiment. Most surgeons are familiar with the force that is often required to squeeze the finger into the bladder past the enlarged lateral lobes after perineal cystotomy. This is one reason for the stretching of the prostatic urethra employed and advised by Bangs, Belfield, Harrison, Schmidt, and others.

One need only examine, says von Dittel,† an anatomical preparation with bilateral prostatic hypertrophy to see how the lateral lobes press against one another by their opposed convexities, and so form a narrowing of the passage causing obstruction and retention.

Von Dittel's‡ interesting and instructive experiments, which led to his proposed "lateral prostatectomy," go to prove the importance of the lateral lobes, especially their extravescical portions. After finding that a wax bougie left twenty-four hours in the prostatic urethra was compressed laterally by an enlarged prostate, he experimented in cases with and without prostatic enlargement, and with the organs in position as well as after removal from the body, by introducing water into the bladder near the apex and noting the resulting outflow with the organs in the upright position: (1) With a normal prostate the water flowed away completely in a short time. (2) When bilateral hypertrophy existed the water flowed away only partly when the bladder was filled under strong hydrostatic pressure, leaving about thirty per cent of residual water. Residual water remained after a vertical median prostatectomy was done, but all the fluid flowed away promptly when the lateral lobes were resected from the exterior. With the organs *in situ* the same result was obtained.

3. In a case of general hypertrophy of the prostate the median portion was cut out as a wedge-shaped piece, but a slow and incom-

* *American Journal of Medical Sciences*, November, 1890. † *Loc. cit.* ‡ *Loc. cit.*

plete emptying of the bladder resulted until a wedge-shaped piece was cut out of both lateral lobes, whereupon the bladder promptly emptied itself. Not even von Dittel claimed that such experiments reproduce exactly the conditions as they exist during life; but the hydrostatic force used is the same as that which, according to McGill, causes retention of urine in cases of intravesical prostatic enlargement, and it is also the same force which empties the bladder during life, and, as in the latter case, becomes weaker as the bladder is more nearly empty.

The recent literature of the subject shows that many, if not most, have been compelled to recognize the importance of the lateral lobes as factors in the case. Thus McGill has removed a considerable amount of the extravescical portion; Keyes* reports removing the lateral lobes as far as one half of the length of the prostate downward and forward; and the present practice, in this city at least, seems to be to shell out the entire prostate as far as possible. Eigenbrodt† and Schmid‡ both admit that hypertrophy and pressure of the lateral lobes is one of the causes of prostatic obstruction. According to J. William White,§ by this lateral pressure, when the enlargement affects chiefly the lateral lobes, "the urethra is narrowed and compressed and the condition is analogous to organic stricture." In advocating the combined operation Belfield|| says that by this means "not only the salient middle lobes, but also the no less obstructing though less obtrusive lateral enlargements are easily removable." Moullin^ expresses it still more forcibly when he says, "The lateral lobes, when they are much enlarged, are quite as important as the median part, and require in most cases to be dealt with as thoroughly if permanent cure is the object." Also, elsewhere◇ he remarks, "Yet in a large proportion of cases they (the lateral lobes), and not the so-called median lobe, are the real offenders." And, again, in describing a case, he says:‡ "Here the lateral lobes were the offending structures. . . . The chief difficulty, if not the whole, was due to the way in which the increase in their thickness had compressed the urethra into a narrow slit, through which it was not easy to force the finger."

The very fact that the three operations of "lateral prostatectomy" performed and reported by Küster‡ were so successful shows not only the practical importance of the lateral lobes, but also the functional results which may follow their removal. In the face of all this evi-

* *Journal of Cutaneous and Genito-urinary Diseases*, 1892, p. 323.

† *Loc. cit.*

‡ *Festschrift zur 70. Feiertag Fr. von Esmarch*, 1893, pp. 443-452.

* *Annals of Surgery*, xviii, 1893, 152.

|| *Loc. cit.*

^ *Loc. cit.*

◇ *London Lancet*, 1892, pp. 1380-1382.

‡ *Lancet*, July 16, 1892, p. 142.

‡ *Archiv f. klin. Chir.*, Bd. xlii, p. 859.

dence we can not doubt the importance of the extravescical portion of the lateral lobes as a factor in prostatic obstruction, by means of its compression.

To sum up, I think the following conclusions are justified :

1. That intravesical prostatic growth is not always, though perhaps most often, the cause of obstruction requiring operative relief.
2. That in such cases the median portion plays a most important part by forming a valve in the majority of cases.
3. That the lateral lobes are often important factors, both intra- and extravescically, but especially in the latter manner.

The above conclusions must be borne in mind, as well as the following requirements of the operation, as having a most important bearing on the

Second Consideration.—The choice of operation.

The requirements of the operation vary according to differing standpoints of different writers. McGill* states, and every one will agree, that to be effective the operation should (1) “for a time thoroughly drain the bladder, and (2) permanently remove the cause of the obstruction.” According to Belfield,† the operation should secure three results: (1) A low level route, (2) a temporary drainage, and (3) stretching of the prostatic urethra. This is essentially indorsed by Keyes, White, and others. Moullin‡ would add to the above requirements the removal of enough of the lateral lobes to convert the urethral slit into a funnel-shaped passage, as well as the removal of the entire intravesical mass, if the operation is to be successful. The latter requirement is questioned by many.

Before discussing the operation I would indorse Moullin’s# statement that “one form of obstruction can be dealt with most easily through the perineum, another supra pubes,” or Wishard’s|| statement that “. . . neither of these operations is suitable to all cases, and that both may be required.” In comparing the relative claims of the suprapubic and perineal methods, including under the latter von Dittel’s “lateral prostatectomy,” we will consider (1) their advantages, (2) how they fulfill the above requirements and the considerations as to the importance of the lateral lobes, and (3) their disadvantages or objections.

The choice of operation is made less free by the uncertainty of diagnosis, which is taken by many as an indication to do a suprapubic

* *British Medical Journal*, Oct. 19, 1889.

† *American Journal of Medical Sciences*, November, 1890, p. 439.

‡ *Loc. cit.*

* *Lancet*, 1882, ii, pp. 1380-1382.

|| *Transactions Indiana State Medical Society*, 1892, p. 215.

operation in all cases, for it admits of digital and ocular examination, and therefore accurate diagnosis with few exceptions.

McGill* claimed that his two requirements are best fulfilled by a suprapubic operation, because (1) it is more generally applicable, (2) it can be performed with greater precision and completed with greater certainty, (3) it insures complete and most efficient drainage, and (4) it is equally safe.

Most writers† agree that the suprapubic route is that of "election," as Tuffier‡ remarks, and that by means of it the hypertrophied prostate can be most easily felt, seen, diagnosticated, and operated upon. The results obtained are better and more uniform than are those by other methods, and, as Eigenbrodt# says, these results will improve by perfecting the technique. If we believed with Buckstone Browne|| that "no good would come of trying to remove the lateral lobes," or questioned with Eigenbrodt^ whether it is possible to do a real radical operation with good results in cases of hypertrophy of the lateral lobes, there would be less choice of operation; *sectio alta*, or some modification of it, would be the operation, except where that is admitted by all to be contraindicated. But the feasibility of enucleating a large part of the lateral lobes has been demonstrated in a number of cases. "On several occasions," says Moullin,◇ "McGill removed as much as two ounces in weight from the sides alone" through the suprapubic incision, and in this he has been followed, among others, by Belfield, Moullin, White, and Keyes.

The many advantages of the suprapubic method are in part counterbalanced by many disadvantages and the imperfect way in which it meets, or fails to meet, the requirements.

In my opinion, McGill's claim that the suprapubic incision insures complete and most efficient drainage is untenable. Although it may drain the bladder after a fashion, it will not keep the pocket made by the prostatectomy clear of urine, which can not but affect it unfavorably. Treves‡ has stated that "the various siphon drainage tubes are delusions and snares." It seems to me, as Chance‡ says, that perineal drainage is the best way to avoid the difficulty for which Kummel dilates the prostatic urethra and uses a large catheter drain, after sutur-

* *British Medical Journal*, October 19, 1889, p. 863.

† See Gervais de Rouville, *Gazette des hôpitaux*, Paris, 1893, p. 629, and Chance, *Medical Press and Circular*, January 3, 1894, p. 3.

‡ *Bull. et mêm. de la Soc. de chir. de Paris*, 1892, xviii, p. 842.

Loc. cit.

|| *Loc. cit.*

^ *Loc. cit.*

◇ *Loc. cit.*

‡ *Operative Surgery*, vol. ii, p. 589.

‡ *Medical Press and Circular*, London, 1894, N. S. lviii, 3.

ing the bladder. As Bennett May * remarked, in discussing McGill's last paper, "for drainage the suprapubic is far inferior to the perineal cystotomy." If one is to rely on suprapubic drainage, the plan used by Cameron † seems to be the plan to recommend. On account of the stinking urine, the bladder, opened supra pubes, was drained and treated for cystitis, and after six weeks prostatectomy was performed when the patient was in a better general and local condition. The question of drainage may have been in part the reason for Belfield's modification of McGill's operation. But other objections to the suprapubic route are also met by Belfield's method—namely, the suburethral growths already referred to, which can not well be reached by the suprapubic incision alone, and which, unless removed, invalidate the result. As Belfield ‡ says, the addition of the boutonnière "affords an access to the entire prostate, which may convert an utter failure into a complete success." By Belfield's method a "low-level route" is the object sought for, and as the necessity for removing very large masses of the prostate is done away with, the mortality should thus be lowered. Besides the perineal opening and perineal drainage Belfield adds overstretching of the prostatic urethra, thus tacitly acknowledging the importance of the compression of the lateral lobes. This was first employed by Schmidt in a case already referred to. Bangs § has reported a case where its use was very effective, but he tells me that the effect has unfortunately proved temporary, indicating that the lateral lobes require something besides stretching. This something Harrison tries to supply by long-continued tube pressure, but this, too, is generally admitted to be insufficient, and some more radical treatment of the lateral lobes is required. Belfield claims that the lateral lobes can be much more easily dealt with by the combined suprapubic and perineal approach. Although Moullin ¶ says that the "lateral lobes, as far as they are obstructive, can in general be dealt with quite as well, if not better, from the interior of the bladder," yet the above considerations indicate that at least without the addition of the perineal opening the lateral lobes may give trouble. I doubt if it is feasible to treat or remove them sufficiently through a suprapubic opening in most cases. In fact, as a further illustration of the failure to meet the requirement to permanently remove the cause of the obstruction, we may cite the case [^] where McGill was un-

* *British Medical Journal*, October 19, 1889, p. 863.

† *Transactions of the Glasgow Pathological and Clinical Society*, 1891-'93, iv, pp. 180, 184.

‡ *Loc. cit.*

§ *Annals of Surgery*, April, 1893.

¶ *Loc. cit.*

[^] Belfield. *American Journal of the Medical Sciences*, November, 1890.

able to remove more than a mass the size of a pea from the prostate, and the remark of Bennett May,* who says, "I have not found removal at all an easy matter." Alexander and others have reported similar experiences.

The objection of recurrence, which applies to the requirement of permanency in the removal, probably applies no more, if as much, to the suprapubic method than to others. Though cases have been reported, it occurs, according to J. William White,† "in less than one per cent of recorded cases," and not unlikely depends in some cases on an incomplete operation. The possibility of stricture following the operation, suggested by Bryson and others, has never been observed, to my knowledge.

McGill's claim that the operation in question is equally safe is not borne out by statistics—i. e., 16 per cent mortality by McGill's tables, 13·6 per cent by Belfield's larger and more recent ones, as compared with 9 per cent by the perineal route. So that Belfield‡ remarks, "Yet the interest of the patient will, doubtless, be better served by a compromise with the requirements of his prostate." Yet, as White§ says, "the late statistics of suprapubic operations are about equal to perineal in mortality," owing to improvement in the technique. That the mortality is due to the general condition quite as much as to the operation is shown by the smaller mortality (3·8 per cent in cases complicated with calculus where the operation is done earlier. But under the same conditions the perineal operation is much safer.

Furthermore, even if it be granted that the removal of the lateral lobes can be satisfactorily effected through the suprapubic incision alone, the prostatectomy of whatever part can only be done, as McGill himself says, "by leaving a raw surface," unless it is possible to suture the wound, as Tuffier|| has done in one case. And it is not only true, as McGill^ says, that "mischief would undoubtedly result from stagnant urine accumulating in this position," which it must do with suprapubic drainage, but also, as White◇ remarks, "the risk of sepsis from exposure of a large absorbent surface is directly increased with the amount of prostatic overgrowth which is removed. In two of the three deaths set down by McGill as directly due to the operation, large portions of the prostate had been taken away, and I have had the same experience." Yet what are we to do? The failures or in-

* *British Medical Journal*, October 19, 1889, p. 863.

† *Annals of Surgery*, xiii, 1893, p. 152.

‡ *Loc. cit.*

§ *Loc. cit.*

|| *Loc. cit.*

^ *Loc. cit.*

◇ *Loc. cit.*

complete results are ascribed to the removal of too little, and the danger increases with the amount removed. Belfield's or Nichols's * combined operation, and Cameron's plan before mentioned, appear to offer the best solution of this question.

Suppuration in the retro-pubic space, occurring three times in McGill's series of cases, is not only an objection to suprapubic drainage, but, like abscess of the prostate, reported in a few cases and once in von Dittel's † practice, it is an objection to the suprapubic route.

A more important objection is hæmorrhage. Although McGill claims that it is not excessive, because the part removed is not very vascular, and with Hamilton ‡ that it can be avoided by keeping within the capsule and its plexus, yet it is certainly a danger or drawback of the operation—a danger, considering the condition of these patients; a drawback, as removing one advantage, the accessibility to sight, and as necessitating the completion of the operation in the dark. Thus Keyes # remarks, "Most of the work has to be done by the aid of touch, as the bleeding soon becomes free and renders visual inspection impossible." This hæmorrhage may be minimized by employing Trendelenburg's position and substituting two fingers of an assistant for the rectal bag.

Von Dittel and others have objected that the results are not uniform, which is accounted for in part by an incomplete operation or the varying condition of the bladder, in part also by the fact that the simple suprapubic operation is not suited to all cases. But, although White says that the difference in the results can not be numerically compared, Belfield has attempted the comparisons between suprapubic and perineal operations, finding scarcely a perceptible difference. All agree that there are conditions which contraindicate the suprapubic and indicate the perineal route if any—namely, serious mischief elsewhere, and a small, rigid contracted bladder that can not be raised above the pubes.

As many of the above objections do not apply to Belfield's combined method, the conclusion is evident that the latter is the preferable one, though still not universally applicable or advisable. To meet many of the same objections, especially those of hæmorrhage and sepsis, the method reported by Nichols, || and independently by Alexander, was apparently devised, but, although a combined method, it is more perineal than suprapubic.

* *Lancet*, 1894, vol. i, p. 926.

† *Wiener klin. Wochenschrift*, 1891, No. 29, p. 532.

‡ *Dublin Journal of the Medical Sciences*, 1891, xcii, pp. 497-500.

New York Medical Record, October 31, 1891.

|| *Lancet*, 1894, vol. i, p. 926.

The PERINEAL ROUTE is seen above to be important as an adjuvant. As a matter of expediency most surgeons are familiar with cases in which the condition of the patient allows no more than a perineal prostatotomy and the use of a large drainage tube.

As an operation of choice it fulfills the requirements of drainage better than the simple suprapubic, it relieves the obstruction, and furnishes a low-level route in those cases in which it is applicable, and it allows of thorough stretching of the prostatic urethra. As to its advantages, the perineal route is perfectly free from anatomical dangers, and, being quickly performed, involves less danger from anæsthetics. It is safer, nine per cent against 13·6 per cent, and it affords temporary relief in all suitable cases and a radical cure in a fair number. The functional results of perineal operations, according to Bel'field's figures, are about the same as those of suprapubic.

Among the objections the most serious is its limitation to those cases only where the "perineal distance" is no greater than the operator's forefinger, which occurs, according to Watson, in two thirds of all cases. The cases with longer "perineal distance" are mostly those with marked lateral-lobe hypertrophy, easily distinguished by rectal touch or by the use of the catheter. Although Moullin says that by the perineal method nothing can or should be done for enlarged lateral lobes on account of the small space and necessary bruising, yet the lateral lobes have been thus removed successfully by Dittel, Landerer, Willett, Wishard, and others, and by the method of Nichols* and Alexander with comparative ease. By the last-named method their removal does not involve a raw surface in contact with the urine. As to the objection that prostatectomy by the perineal route is done in the dark, little can be said, except that the same objection applies in many cases to the suprapubic method on account of hæmorrhage. (The failure of some perineal operations is probably due to the unsuitableness of the case, yet in eleven cases Bruce Clark had to add a suprapubic incision in only two cases, and Wishard has had a similar experience.)

With less danger, the best drainage, and fair results, the perineal route has a certain field of usefulness. Its indications are variously given by different authors, being generally limited to small growths restricted to the posterior median wall, and especially to cases where the bladder is atonic, contracted, or rigid, where there is renal trouble, toxæmia, or advanced cystitis, and, of course, where the perineal distance is not too great.

* *Loc. cit.*

As the perineal incision does not increase the danger of the operation, and as it is necessary to Belfield's method, we may first explore with the finger and finish the operation in this way if feasible; and if not, a suprapubic incision may be added and the operation completed by Belfield's or Nichols's method. As, according to Moullin, "the difficulty of dealing with the lateral lobes through the prostatic urethra led to von Dittel's operation," we will now briefly consider the method of

LATERAL PROSTATECTOMY.—In this operation diminution in size of the lateral lobes removes both their intravesical projection and their lateral compression. If a median outgrowth is present, this result on the lateral lobes and the resulting cicatricial contraction and subsequent atrophy of the gland will prevent the median portion from acting like a valve by enlarging and lowering the vesical outlet. The median portion may even atrophy and disappear, and thus a "low-level route" would in time, if not immediately, be obtained. Drainage, not equal to perineal, but at least as good as suprapubic, is obtained through the urethra. Thus fulfilling the requirements of the case, it has the following advantages. There is no raw surface left, the mucous membrane being uninjured. It is safe, simple, and effective. It is done under inspection and not blindly, and there is less danger from hæmorrhage.

Many theoretical objections have been advanced, mostly from lack of personal acquaintance with the technique and its results. Thus Moullin * and others say that "McGill's method of enucleation of the lateral hypertrophies through a suprapubic opening appears to obviate by a simpler and presumably a safer way the performance of von Dittel's ingenious 'lateral prostatectomy.'" Eigenbrodt † fears theoretically that "the technique is not easy on account of the narrow space, and in consideration of the many arteries and veins which are here cut." Keyes's ‡ criticism, that "it has been tried and found wanting" by Küster, is based upon an incomplete report of the three cases reported, for a fistula did not remain in all three, but only in two, or perhaps only in one. This occurrence of fistula is mostly a matter of technique, subject to improvement, and it quite frequently results from a suprapubic operation. The other objections are groundless as far as my limited experience goes.

It may well be, as Moullin # says, that "it is not likely that von Dittel's operation will be frequently required." It is indicated only when the lateral lobes are enlarged, and therefore may supplant the

* *Loc. cit.* † *Loc. cit.* ‡ *Medical Record*, 1891, xl, pp. 525-529.

Loc. cit.

perineal method in that one third of all cases where the latter is inapplicable. I would not necessarily limit it merely to cases where the suprapubic method is contraindicated—namely, cases of lateral hypertrophy with a small, rigid bladder.

The four operations reported by Nichols,* and an equal number done by Alexander, resemble von Dittel's operation in technique, except that the perineal incision is shorter and therefore gives less room, but the hypertrophy is enucleated and not excised, perineal drainage is used, and a suprapubic incision is added, through which a median projection may be removed if necessary. It may therefore be more generally applicable and consequently more useful than von Dittel's operation.

By one or the other of these perineal operations all varieties of prostatic enlargement may be operated upon; but the operation most generally applicable and giving the best results, but the highest mortality, seems to be at the present time the combined operation recommended by Belfield. Where this is contraindicated, and in other suitable cases, one of the perineal methods may be preferred on account of their lower mortality.

Where lateral enlargement is the most prominent feature, I can recommend lateral prostatectomy as most conservative, safe, and easy.

I add briefly the history of a case where I performed von Dittel's lateral prostatectomy: P. C., aged sixty-two years, entered Bellevue Hospital, October 20, 1891, with retention of urine. Difficulty, frequency, and pain in urination had existed for two years. Prostate uniformly enlarged, as felt *per rectum*. Two suprapubic operations were done by other surgeons, October 26, 1891, and some weeks later. No marked intravesical growth was found. The vesical outlet was enlarged and deepened posteriorly by a V-shaped excision and the use of the cautery. Suprapubic drainage, catheter tied in urethra, but no spontaneous urination followed. Suprapubic fistula remained, and prostate was still felt much enlarged on rectal examination. This case seemed to indicate the trial of von Dittel's method, as the lateral lobes were chiefly involved, the suprapubic method had twice failed, and the patient was anxious for relief. Accordingly, after experimenting on the cadaver, I operated, March 15, 1892, with the patient in Trendelenburg's position to lessen hæmorrhage. Median incision from coccyx to and around the left of rectum and an inch anteriorly. After division of skin and fascia, the upper part of the ischio-rectal fossa was reached by blunt dissection without hæmorrhage, after ligation of only one or

* *Loc. cit.*

two vessels. The levator ani muscle was divided antero-posteriorly on the left side of the prostate, exposing the latter, which was freed by the finger on all sides. The prostatic plexus looked large, but little bleeding occurred on removing two large boat-shaped pieces from the two sides. But little was left of the prostate, and the urethra was not injured. The wound was packed and a catheter tied in the urethra. Recovery uneventful. He was able to pass urine much more freely than before, though a suprapubic fistula remained. Death three or four months later, probably from cancer between the bladder and rectum, though no autopsy was obtainable. The functional result could not be estimated on account of the following peculiarity of the case: From the first operation a catheter could be passed quite easily and fluid injected, but little or no urine or fluid returned, except from the suprapubic fistula. The point of the catheter, I found later, lay in a pouch between the bladder and rectum, the walls of which closed the eye of the catheter, allowing fluid to be injected but not evacuated. The pouch was probably the result either of former catheterization, suppuration, or cancer near the vesical outlet.

So far as it may be justifiable to reach any conclusion from so limited an experience, I should say that the operation is feasible, easy, and safe.

